

**The Financial Vulnerability of Minority Homeowners:
Evidence from the Recent Financial Crisis***

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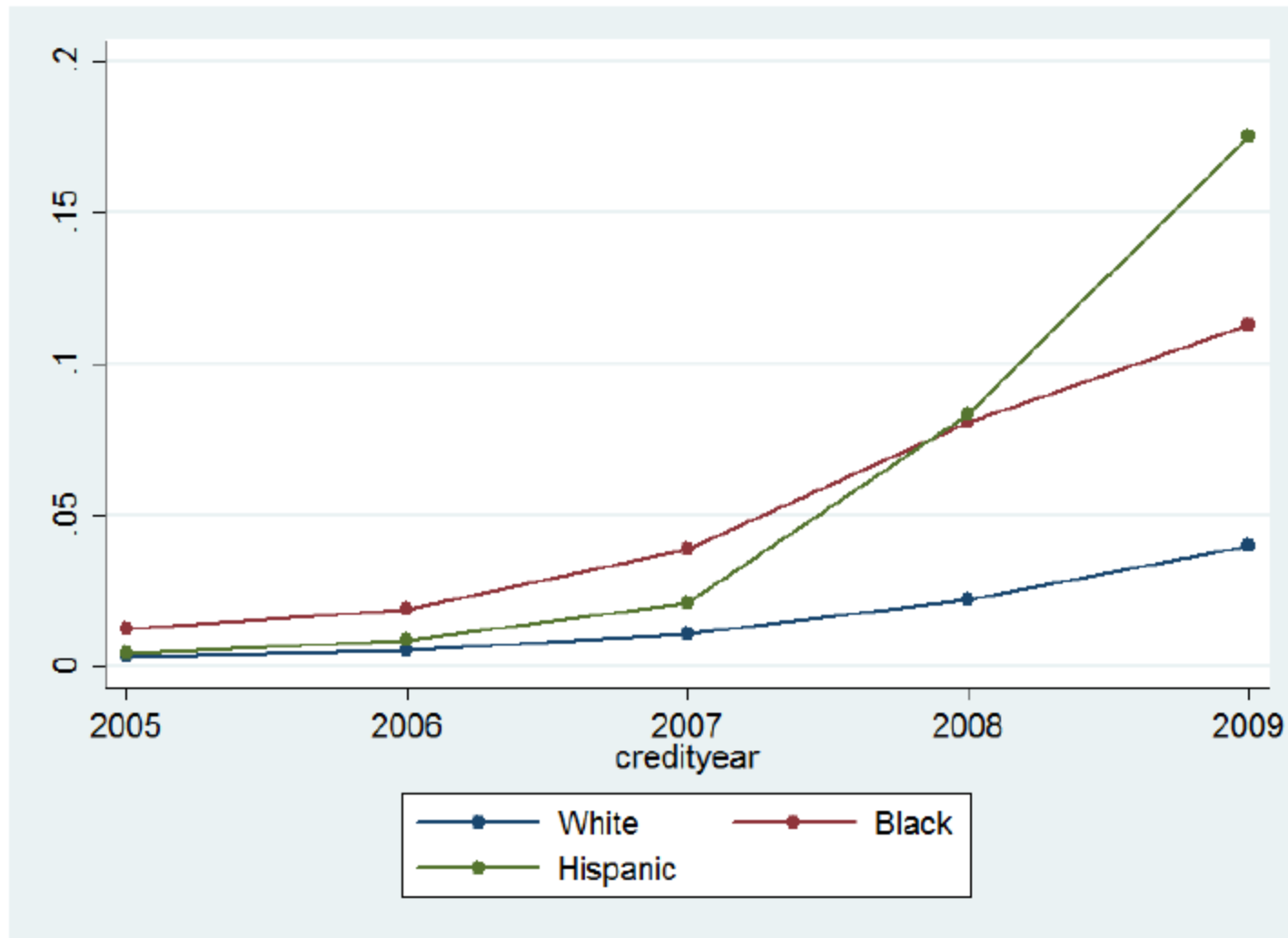
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The Financial Vulnerability of Minority Homeowners: Evidence from the Recent Financial Crisis

- Homeownership has long been viewed as an important avenue for wealth accumulation and proposed as a mechanism for reducing racial disparities in wealth. However, homeownership carries considerable risk that may increase the vulnerability of households with limited wealth or liquidity
- Our main goal is to examine the consequences of the recent housing market collapse and recession that ensued on mortgage market outcomes of black, white, Asian, and Hispanic homeowners.
- We assemble a representative sample of mortgages from seven major markets from HMDA merging those mortgages with housing transaction and lien data, as well as longitudinal data from a major credit reporting agency.
- We find substantial unexplained racial and ethnic differences in the likelihood of serious mortgage delinquencies and foreclosures especially among home purchase mortgages, these negative outcomes are concentrated among borrowers who purchased their homes just before the housing crisis, and among borrowers with several different risk factors.

Figure 2. Unconditional rates of mortgage foreclosures by race



Sample Construction

- **Merge Home Mortgage Disclosure Act Data with Dataquick housing transaction and mortgage refinance data**
 - **Mortgages in April-July 2004, 05, 06, 07, and 08**
 - **Mortgages in the following metropolitan markets: SF Bay area, Los Angeles, Chicago, Cleveland, Denver, Maryland DC-Baltimore Suburban Corridor and Miami-Palm Beach Corridor**
- **Draw a sample of approximately 4,000 mortgages per site, year and type (home purchase or refinance)**
- **Provide files to Experian for merger with Credit History archival data drawn in March of the year preceding the mortgage and every year after through 2009. Credit file data returned without names, addresses or identifying information.**

Table 1: Sample Selection of HMDA Variables

Variable	HMDA full sample		DQ High quality match		DQ High quality match--		Sample, weighted		Experian Matched	
	Mean	Stand. Dev.	Mean	Stand. Dev.	Mean	Stand. Dev.	Mean	Stand. Dev.	Mean ¹	Stand. Dev.
Black	11.1%	33.9%	11.6%	34.5%	11.4%	34.3%	11.4%	34.3%	11.2%	31.5%
Hispanic	17.4%	41.0%	19.4%	42.7%	19.3%	42.6%	19.2%	42.6%	18.5%	38.8%
Asian	7.5%	28.4%	8.6%	30.3%	8.5%	30.1%	8.6%	30.3%	8.9%	28.4%
White	67.8%	50.5%	60.1%	52.9%	60.5%	52.8%	60.5%	52.8%	61.1%	48.7%
Loan Amount	\$247	\$243	\$271	\$221	\$274	\$224	\$274	\$227	\$278	\$211
Applicant Income	\$107	\$142	\$105	\$128	\$105	\$127	\$106	\$132	\$106	\$115
Tract Median Inc	\$59.1	\$25.6	\$59.6	\$25.2	\$59.7	\$25.2	\$59.7	\$25.2	\$60.4	\$23.5
Tract Pct Black	12.6%	23.8%	11.6%	22.5%	11.5%	22.4%	11.5%	22.4%	11.3%	20.4%
Tract Pct Hispanic	16.9%	22.7%	16.5%	22.1%	16.4%	22.0%	16.5%	22.1%	16.3%	20.2%
Tract Pct Asian	6.3%	10.9%	6.5%	11.2%	6.5%	11.1%	6.5%	11.1%	6.6%	10.4%
Number of Observ	9,345,709		4,002,996		1,459,468		273,589		238,785	

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Table 2 Descriptive Statistics

Credit Data	purchase			refinance		
	Obs	Mean	Std. Dev.	Obs	Mean	Std. Dev.
Mortgage Delinquency 90-180	327124	0.03451	0.21424	306213	0.02973	0.196019
Foreclosure	327124	0.05297	0.31881	306213	0.037	0.250146
Delinquency prior to Mortgage	327124	0.00061	0.02533	306213	0.00209	0.046244
Foreclosure prior to Mortgage	327124	0.0013	0.03694	306213	0.00606	0.082405
Vantage Score	327124	781.261	103.989	306213	775.027	109.766
Mortgage Payment to Income	326975	0.25605	0.27958	305586	0.24744	1.063817
Debt Payment to Income Ratio	326975	0.32087	0.33629	305586	0.34757	1.191213
Borrower Age	327124	27.1149	23.1167	306213	34.3047	24.80262

Table 2 Descriptive Statistics

	purchase			refinance		
HMDA Data						
Rate Spread	327124	0.15063	0.35769	306213	0.16787	0.373748
American Indian	327124	0.00291	0.05384	306213	0.0032	0.056481
Asian	327124	0.09711	0.2961	306213	0.08601	0.280381
Black	327124	0.08875	0.28438	306213	0.12557	0.331367
Hispanic	327124	0.19545	0.39655	306213	0.18158	0.385502
White	327124	0.61579	0.48641	306213	0.60363	0.489143
Male	327124	0.64264	0.47922	306213	0.64256	0.479247
Female	327124	0.35479	0.47845	306213	0.35451	0.478365
Loan Amount	327124	105.745	106.129	306213	100.644	108.7924
Applicant Income	327124	285.923	210.134	306213	261.56	199.2007
Coborrower Present	327124	0.35369	0.47811	306213	0.47618	0.499433
Jumbo Loan Amount	327124	0.28003	0.44902	306213	0.18907	0.391569
Tract Median Income	327124	60041.2	23427.2	306213	60436.2	23543.36
Tract Pct Black	327124	9.9519	18.3404	306213	12.273	21.65204
Tract Pct Hispanic	327124	16.1692	20.2096	306213	17.1159	20.57326
Tract Pct Asian	327124	6.47007	10.2523	306213	7.10725	10.75604
Tract Pct Owner Occ	327124	68.2891	23.892	306213	69.2019	22.74898
Tract Pct in Poverty	327124	7.70878	7.27257	306213	7.96233	7.49126
Tract Price/Rent	327124	0.00445	0.00193	306213	0.00444	0.001701

Table 2 Descriptive Statistics

		purchase			refinance	
Dataquick Data						
Loan to Value Ratio	327124	0.88482	0.2423	303126	0.57612	0.415962
Subordinate Lien	327124	0.42781	0.49476	306213	0.01646	0.12725
First Lien Adjustable Rate	327124	0.51456	0.49979	306213	0.47834	0.499531
condo	327124	0.21819	0.41302	306213	0.13901	0.345953
mobile	327124	0.00126	0.03541	306213	0.00118	0.034364
Single Family	327124	0.77428	0.41806	306213	0.83744	0.368967
lot size	327124	15675	575974	306213	15050.7	397858.4
Unit square feet	327124	1797.55	26192.6	306213	1766.18	20118.8
number of bathroom	327124	1.98612	6.5989	306213	2.00473	1.147681
number of bedroom	327124	2.1739	6.84885	306213	2.03594	1.769331
stories	327124	1.16666	1.57848	306213	1.22003	1.33475
units	327124	1.40505	14.8341	306213	1.49266	19.87919

Table 3: Racial Differences in Credit Outcomes

Race	Home Purchase Sample		Refinance Sample	
	Delinquencies	Foreclosures	Delinquencies	Foreclosures
Black	0.030816*** (0.002115)	0.041926*** (0.003613)	0.015711*** (0.001804)	0.016984*** (0.002377)
Hispanic	0.023411*** (0.001558)	0.038697*** (0.002504)	0.015130*** (0.001359)	0.023853*** (0.001980)
Asian	0.003359** (0.001673)	0.005623** (0.002466)	0.007799*** (0.002185)	0.011862*** (0.002760)
R-square	0.057	0.074	0.046	0.046

Table 4: Credit Outcomes and Subprime Controls

Home Purchase Sample						
Model	Race	Baseline	Rate Spread	Lender FE's	Lender and Tract FE	Add'l Subprime Controls
Delinquencies	Black	0.030816*** (0.002115)	0.027439*** (0.002106)	0.026969*** (0.002125)	0.023542*** (0.002315)	0.023164*** (0.002314)
	Hispanic	0.023411*** (0.001558)	0.020849*** (0.001561)	0.018841*** (0.001574)	0.018888*** (0.001652)	0.018885*** (0.001646)
	Asian	0.003359** (0.001673)	0.002835* (0.001662)	0.002284 (0.001683)	0.003290* (0.001784)	0.003276* (0.001778)
	Rate Spread		0.036033*** (0.002016)	0.034187*** (0.002464)	0.033659*** (0.002441)	0.033330*** (0.002461)
	R-square	0.057	0.060	0.064	0.098	0.099
Foreclosures	Black	0.041926*** (0.003613)	0.034397*** (0.003558)	0.033230*** (0.003587)	0.030188*** (0.003921)	0.029918*** (0.003910)
	Hispanic	0.038697*** (0.002504)	0.032979*** (0.002521)	0.029501*** (0.002521)	0.030629*** (0.002749)	0.030823*** (0.002754)
	Asian	0.005623** (0.002466)	0.004467* (0.002442)	0.005368** (0.002486)	0.005761** (0.002699)	0.005780** (0.002682)
	Rate Spread		0.080369*** (0.003226)	0.061783*** (0.004032)	0.058779*** (0.004001)	0.056879*** (0.004051)
		0.074	0.080	0.086	0.123	0.123

Table 5: Credit Outcomes and Contemporaneous Controls

Home Purchase Sample						
Race	Delinquencies			Foreclosures		
	Cnty-Year FE	Negative Equity and	LTV Bins and Employment	Cnty-Year FE	Negative Equity and	LTV Bins and Employment
Black	0.022986*** (0.002316)	0.022892*** (0.002317)	0.022322*** (0.002318)	0.029607*** (0.003916)	0.029410*** (0.003918)	0.028656*** (0.003918)
Hispanic	0.018459*** (0.001644)	0.018263*** (0.001646)	0.017606*** (0.001645)	0.030120*** (0.002747)	0.029758*** (0.002758)	0.028614*** (0.002756)
Negative Equity		0.519101*** (0.058957)			1.059106*** (0.094168)	
Emp*Neg Equity		-0.535920*** (0.062170)			-1.102721*** (0.099259)	
LTV 100-110			0.352791*** (0.072673)			0.418448*** (0.114345)
LTV 110-130			0.337909*** (0.069624)			0.552708*** (0.117861)
LTV 130-150			0.449225*** (0.089590)			0.919167*** (0.145861)
LTV above 150			0.482958*** (0.085812)			1.046922*** (0.133552)
R-squared	0.105	0.106	0.108	0.133	0.134	0.137

Table 6: Negative Equity and Employment Controls

Home Purchase				
Race Interactions	Delinquencies		Foreclosures	
	Black	Hispanic	Black	Hispanic
Level	0.021703*** (0.006013)	0.018406*** (0.005063)	0.037782*** (0.011417)	0.040812*** (0.009981)
2008	-0.031173*** (0.007069)	-0.027274*** (0.006542)	-0.048412*** (0.012299)	-0.063945*** (0.010615)
2007	0.005109 (0.007156)	0.021940*** (0.006335)	-0.029458** (0.012037)	0.003489 (0.011983)
2006	0.027910*** (0.007712)	0.020588*** (0.006562)	0.030880** (0.014066)	0.036064*** (0.012121)
2005	0.014361* (0.007898)	0.015192** (0.006609)	-0.005141 (0.013507)	0.011576 (0.011045)
R-squared	0.139		0.182	
Observations	204844		204844	

Table 9: Credit Outcomes, Race Specific Employment, and Race Specific Homeowner Attributes

Racial Differences in Attributes						
Race	Delinquency			Foreclosure		
	Not Race Specific	Employment	Attributes	Not Race Specific	Employment	Attributes
Black	0.022322*** (0.002318)	0.014737*** (0.002881)	0.023897*** (0.002798)	0.028656*** (0.003918)	0.017425*** (0.004365)	0.029377*** (0.004491)
Hispanic	0.017606*** (0.001645)	0.015425*** (0.001684)	0.016562*** (0.003173)	0.028614*** (0.002756)	0.025299*** (0.002827)	0.036125*** (0.005578)
R-squared	0.108	0.109	0.11	0.137	0.138	0.139

Interaction with Race and Ethnicity						
Race	Delinquency			Foreclosure		
	Employment	Risk Factor	Attributes	Employment	Risk Factor	Attributes
Black	0.014737*** (0.002881)	-0.002324 (0.003008)	0.006890 (0.022576)	0.028843*** (0.003919)	0.000411 (0.005039)	0.018554 (0.014296)
Hispanic	0.015425*** (0.001684)	0.016474*** (0.001929)	-0.026117 (0.017865)	0.028444*** (0.002753)	0.020380*** (0.003401)	0.006808 (0.013394)
R-squared	0.109	0.109	0.11	0.137	0.139	0.139

Summary and Conclusions

- **Substantial racial and ethnic differences in the mortgage delinquencies and foreclosures. Differences largest for home purchase mortgages.**
- **Racial and ethnic differences relatively robust to controls for the impact of subprime lending on credit market outcomes**
- **Ethnic differences in outcomes relatively unaffected by controls for contemporaneous shocks including employment and equity shocks.**
- **Ethnic differences concentrated among home purchases that arose near the peak of the market even after controlling for negative equity and unemployment risk.**
- **Mechanisms**
 - **Blacks: Racial differences in employment, and racial differences in outcome by income ratios and rate spread loans.**
 - **Hispanics: Ethnic differences in outcomes by education level**